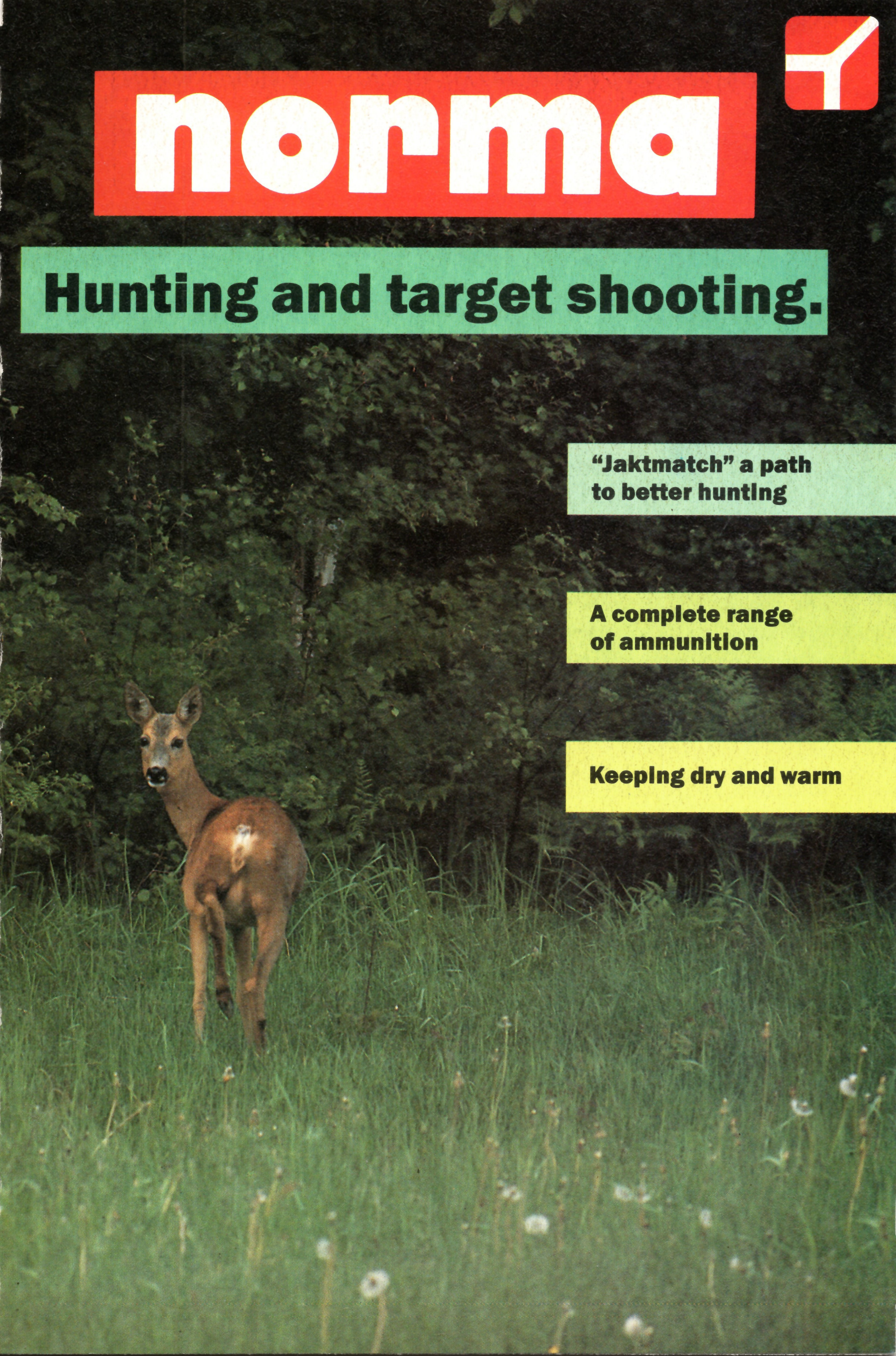
norma

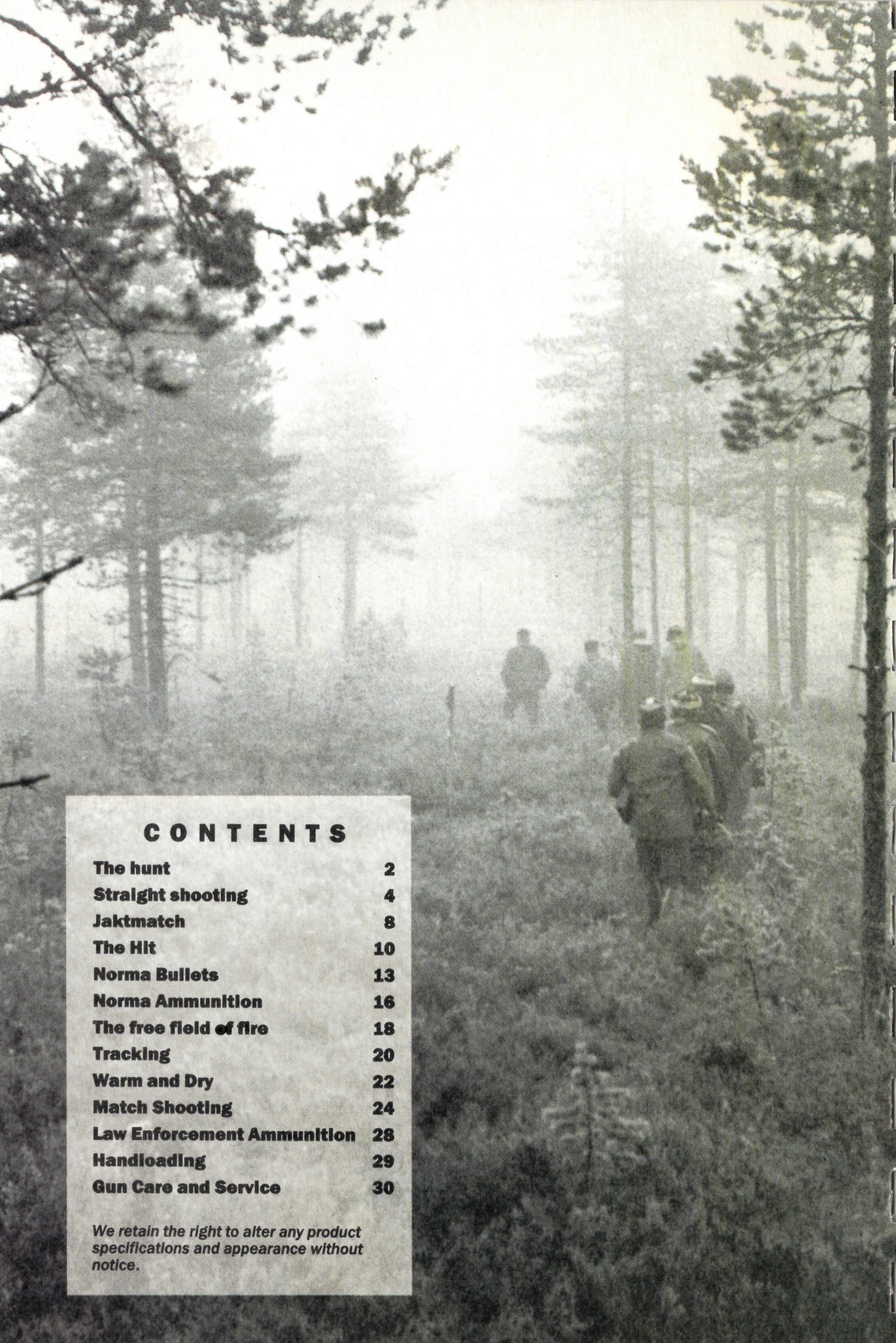
Hunting and target shooting.



"Jaktmatch" a path to better hunting

A complete range of ammunition

Keeping dry and warm



CONTENTS

The hunt 2
Straight shooting 4
Jaktmatch 8
The Hit 10
Norma Bullets 13
Norma Ammunition 16
The free field of fire 18
Tracking 20
Warm and Dry 22
Match Shooting 24
Law Enforcement Ammunition 28
Handloading 29
Gun Care and Service 30

We retain the right to alter any product specifications and appearance without notice.

THE SATURATED AUTUMN AIR sharpens the senses.
The trees grow out of the mist, every trunk and branch clearly defined. Sounds are softened but perfectly clear, even from far off.

This was a morning just so described. I was the last man in the group, on route to our stations. I slowed down occasionally to let the others get ahead of me. Not really wanting to share this experience with anyone else. The pine forest was incredibly beautiful. The sun fought a losing battle with the mist. All was blanketted in a soft light which emphasized the red, brown and yellow autumn colours. The sounds of the forest, the soft cooing of a wood pigeon, formed a perfect background to the low, muttering voices and the soft tramp of boots.

Today I had drawn the station farthest out, nearest to the drivers. It could be very pleasant, I would be able to sit down in peace and quiet. My hunting comrades received their stations and made off one after the other. In the end I found myself alone and followed the old, sunbleached markings out to the edge of the forest. I arrived feeling warm. The temperature was around zero celcius and my breath smoked. It would be just as well to pull on a pullover and a thick knitted cap before the cold crept inside my clothing.

I set up my folding chair with my back resting against a tree. I took a new box of ammunition from my backpack and opened it. 20 shiny bullets. The rifle felt cold and hard in my hands as I loaded. I checked the sights and made a few practise passes. My pulse ran a little faster and I had an "inner vision" of a mighty elk striding out of the forest into my line of fire.

That first hour with the thoughts wandering quickly from one subject to another. It takes a while before I settle down and begin to hear the sounds around me. Field mice rustled in the undergrowth, the soft breeze rattled gently through the tree tops. A stick cracked occasionally, the sounds of wood grouse taking flight. Soon it will be winter and the shooting season... the horns of the drivers reached me on the wind from far away. Out on the soft, bare ground before me the mist had been driven off by the breeze and the sunshine. A few solitary red pines with green tops stood in the distance. As if on watch.

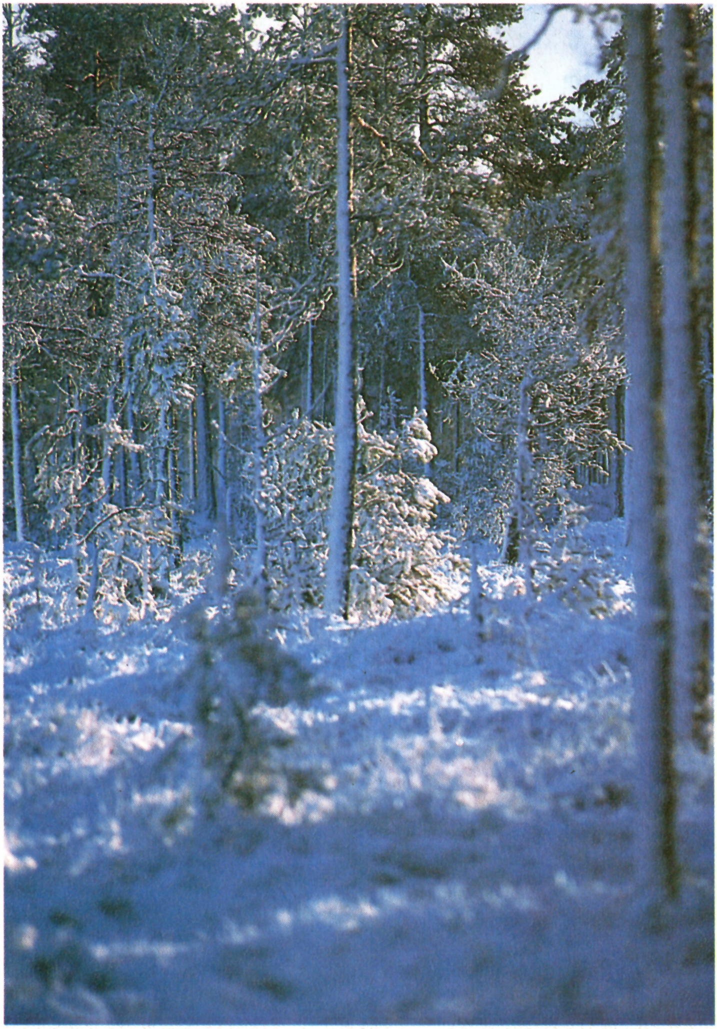
Now I could hear the voices of the drivers quite clearly. To the edge of the forest to my right, infront of the next to last station, things began to get noisy. There was a single shot, then another and a third. What was happening? Suddenly something began to crash through the undergrowth quite near be. Something dark. An elk? A large elk cow emerged from the forest. She moves sedately but hesitantly. Are the drivers bothering her? Unfortunately she is too far away and partly hidden when she stops. She peers about hesitantly, searching. As if she is waiting for something.

My pulse has definitely hit 120, I can feel the blood in my cheeks. My rifle is cradled in my shoulder but I hadn't even noticed I'd released the safety and got up to steady myself against the tree. The cow seems unhurt, she stands and looks back, walks a few steps and waits. They must have shot her calf. I watch as the cow moves away amongst the bushes out of range. Oh well, there will be other opportunities.

Soon the horns signal the end of the drive. Time to go home. The scenery around me has become more of a backdrop, the exitement of the shooting and sighting the elk cow still pulsing through me as I walk over the soft clear ground in the pale autumn sunlight.

Straight Shooting

– Ballistics and sighting-in.



Ballistics is the study of projectiles in motion and can be considered in three forms. Inner ballistics, the events inside the firearm. External ballistics, the behaviour in flight, and terminal ballistics, the effects at the target.

Fundamental laws of physics dictate that a bullet in flight can never rise above its direction of fire. The earth's gravitational pull began to effect the bullet as soon as it leaves the muzzle. The force is such that if a similar bullet were to drop at the precise moment of firing, from the same height as the gun, they would both hit the ground at the same time, provided the barrel was horizontal.

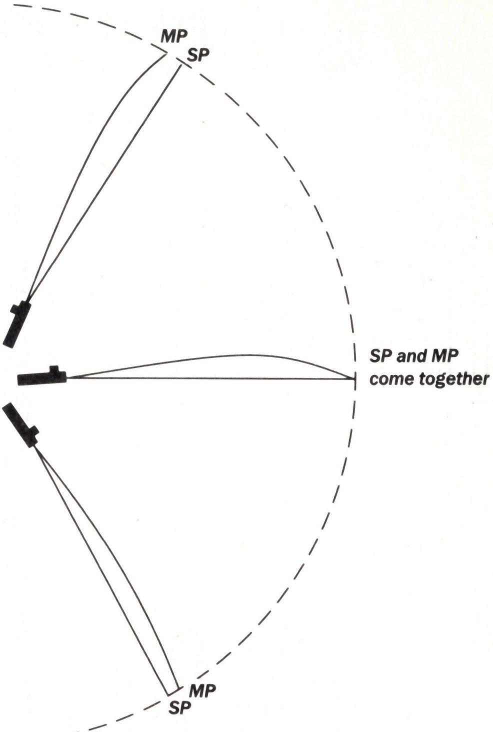
Problems of trajectory

In order to make the bullet fly as straight as possible, it is important to try to reduce the time of flight. This may be achieved in three ways;

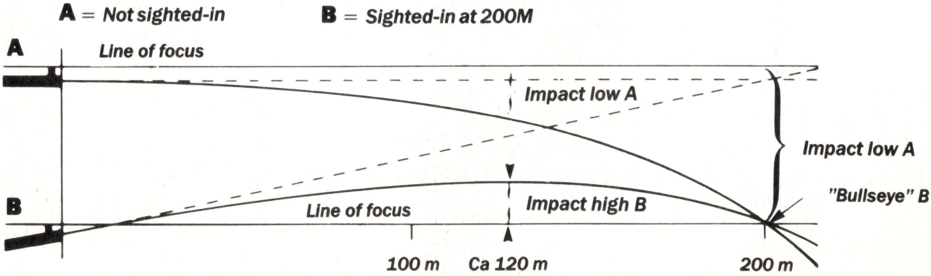
- By increasing the muzzle velocity (M.V.)
- By reducing air resistance by virtue of a more efficient aerodynamic form.
- By increasing the mass so that air resistance has less effect in relation to the kinetic energy.

Shooting uphill and downhill

A bullet fired from a horizontal barrel will, by the time it reaches the target, have been pulled straight down to some degree, by the earth's gravity. When the gun is elevated to shoot uphill, the gravitational pull is not straight down, but backwards and down, making the bullet strike higher than expected. When shooting downhill, gravity pulls the bullet forward and down, and the strike of the bullet is even higher still. This phenomenon should be considered when shooting at game either uphill or downhill with a gun sighted-in over level ground. The effect is not so great over short distances or small angles off horizontal.



SP = sighting point, MP = meeting point



Sighting-in

Game shooting in Europe is often conducted at less than 100M, however, it is recommended that hunting rifles be sighted for a distance of about 175M. This is not to suggest that shooting game should be attempted at extended ranges, but it may be necessary occasionally, to fire at a wounded animal at farther than normal. If the rifle is already sighted-in for a slightly longer distance, the importance of judging the correct distance in an emergency is not so critical.

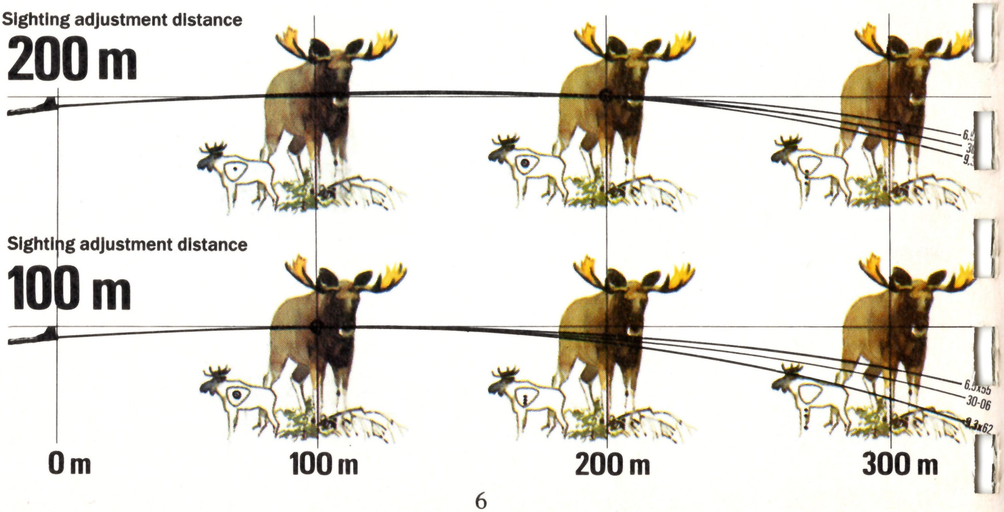
As we have mentioned, a bullet will begin to fall to earth the moment it leaves the muzzle. For a gun to be on target at any pre-selected distance therefore, the bullet must strike high at any distance shorter than the intended point of impact. The trajectory of the bullet is at its highest somewhere just past the half-way mark. Sighted-in for 200M this occurs at about 120M, but only by a couple of centimeters.

Using a rifle sighted-in att 200M, the bullet will strike the vital area at both 100M and 200M, as the first illustration shows. The second illustration shows a correct hit at 100M but not at 200M, since the gun has been sighted-in at 100M. These examples also show that different calibres produce different results. The Norma ballistic tables can help you determine the optimum sighting-in distance for the ammunition you normally use. It also shows the varying point of impact at distances other than that sighted-in.

Sighting-in and training

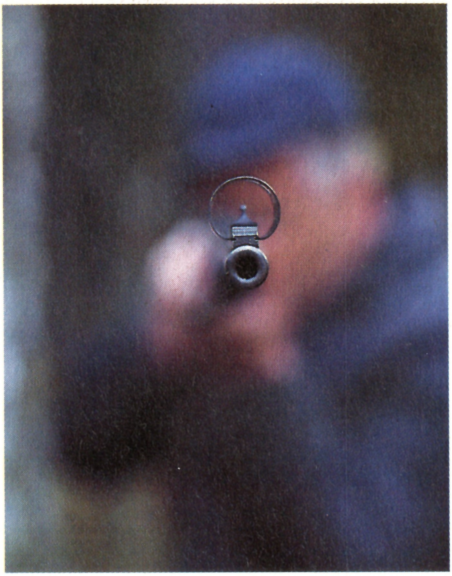
It takes a lot of training to become a proficient marksman. As with most disciplines, proficiency is only gained through dedication and practice. Norma Jaktmatch ammunition is an exellent choice for use in training, as it is easy to switch to the more expensive hunting ammunition without loss of accuracy or a change in technique.

You should check your sights occasionally on a shooting range during the long hunting season. It is easy to accidently knock your sights out of true when out hunting. But remember to use the same ammunition on the shooting range as when out hunting.



NORMA JAKTMATCH

– A Shortcut to better hunting



There is only one way to become a better shooter and hunter, and that is by shooting and hunting more.

The more familiar you are with your gun, with it's characteristics and performance, the more confident you will be in exhilarating situation of a hunt. A failed shot due to inexperience is no fun and quite unnecessary.

Essential and economic training can be carried out using Norma Jaktmatch ammunition, manufactured to complement Norma's conventional hunting ammunition. The two are equally matched for accuracy, though Jaktmatch produces less recoil, making training less stressful and more effective. This has been achieved by altering the bullet weight and velocity, so the point of impact may vary with some guns, compared to the point achieved with hunting ammunition. The group size is still the same, it is simply located at a different point. The relocation is always the same, however, so it is a simple matter to re-set scopes and open sights when changing from Jaktmatch to Norma hunting ammunition.

No compromise on quality has been made in order to make Jaktmatch less expensive. Cost savings have been made in the packaging, which unlike the hunting ammunition, does not require the plastic inserts to prevent rounds rattling when carried on the hunt.

JAKTMATCH AMMUNITION®

Calibre	Ref.	Bullet type	Bullet weight		Ref. Bullet	Velocity m/sec.		Energy Joule	
			g	grains		V_0	V_{100}	E_0	E_{100}
.22 LR	15612	Lead round nose	2,6	40	–	325	–	–	–
.222 Rem	15715	Full jacket semi p.	3,2	50	65702	990	792	1568	1004
6,5x55	16528	Full j. round nose	5,2	80	66522	905	712	2123	1314
6,5x55 Elektron	16526	Full j. Spire point	9,0	139	66516	770	721	2670	2344
7 mm Rem. Mag.	17026	Full jacket semi p.	9,7	150	67003	913	841	4042	3429
.30-06	17651	Full j. Spire point	9,5	146	67602	845	774	3391	2843
.308 Win	17622	Full j. Spire point	9,5	146	67602	810	743	3104	2615
8x57 JS	18009	Full jacket semi p.	8,0	123	68014	860	706	2958	2164
9,3x57	19306	Full j. Spire point	15,0	232	69306	675	601	3417	2709
9,3x62	19318	Full j. Spire point	15,0	232	69306	765	685	4389	3515

The hit

When you shoot an animal, it is very important to observe it's reaction on being hit. This may not be easy due to recoil, but always assume that the shoot was good and continue to look for signs of the hit. The more certain you are of the point of entry of the bullet, the easier it will be to locate the animal.

A near miss to a standing animal, lika a moose, normally results in the animal remaining still, listening for the shot. A moving animal will often stop to listen and look around. A hit well outside the vital area produces a violent reaction from the animal, as if it had been whipped. It will run away immediately, or, if already moving, increase its speed.

Dropping on the spot

It is most unusual for a member of the deer family to fall and die immediately upon being hit. Normally, this only happens if the bullet penetrates the brain or the spinal cord in the neck. A hit further back in the spine paralyses the animal and renders it unconscious. It falls but may recover quite quickly. When approaching to deliver the coup-degrace, it is important to anticipate the possibility of the animal suddenly rising to it's feet and fleeing.

The shoulder hit

A hit through the lungs is fatal but not always immediate. If the animal was in motion when hit, it may well continue for some distance before falling down. A standing animal will often twitch and fall, or take a few steps before falling. Hits on the edges of the lungs can be more difficult to observe. Unless the animal is frightened, it normally moves away to find somewhere to lie down, otherwise it may well run for long distances, the shock of the wound being suppressed by the stress hormones.

The Gut Hit

On a standing animal, a hit in the abdomen can be recognized by the animal arching it's back, contracting and moving with stiff limbs. A hit in this region is almost always fatal, but death may occur only after a long period of unnecessary suffering to the animal. A hit to the abdomen in a moving animal is much more difficult to recognize and it is particulary important to observe the animal's movements and not to frighten it. If frightened it will continue it's escape and take longer to lie down.

The Leg Shot

A shot in the front leg is much more obvious than a hit in the hindleg. The animal may fall over or limp severely. In some instances, the leg can even be seen to swing freely. A hit in a hindleg is difficult to identify and is particularly hard to recognize in deer, who do not carry much weight on their hind legs.

The Head Shot

Hitting an animal in the head, very often leads to severe maiming. It is extremely difficult to make a direct hit to the brain and a hit in other parts of the skull is not normally enough to render the animal unconscious. Shooting at the head should be avoided at all times. There is no justification for causing the considerable suffering to an animal who may survive for some time with part of it's mouth shot away.

Hits on birds

Observing the effect of a hit on a sitting bird is usually reasonably easy.

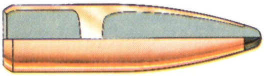
With a fatal shot, the bird folds its wings and falls straight to the ground with its head bent down. A hit to the wing will make it fall forward and to the side, with the head held upright. When it has landed, it may run away into hiding. If hit in the abdomen, it will bend its back and glide with both legs hanging before trying to hide.

Attempting to interpret the effects of a hit is often difficult. Each individual reacts differently due to varying point of impact, physical condition, and bullet effect etc. It is therefore most important to observe the movements of the animal and prepare for an immediate second shot to save the animal suffering should it not fall.

Always be aware of your own and the animal's location throughout the shoot, so that any tracking made necessary by a wounded animal, is made easier.

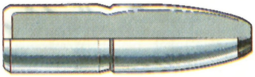
Norma Bullets for Every Purpose

In any given calibre, the effect of a hit will vary with different design, weight and velocity. Allowing maximum freedom of choice, Norma offer several different types of bullet.



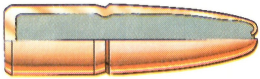
NOSLER has two separate cores with a partition between them. The front core consists of soft lead allowing early and rapid mushrooming. The rear core is made of hardened lead retains its shape, penetrating deep even through bone. The design virtually guarantees a substantial exit wound.

1. Exposed soft nose.
2. Thin forward tapered jacket.
3. Partition.
4. Antimony hardened rear core.



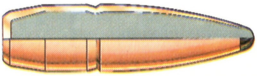
ALASKA has a very stable trajectory, moderate expansion but good mushrooming ability and deep penetration. The rear part of the jacket is reinforced. Alaska is a good all-round bullet for medium to heavy game.

1. Thin forward tapered jacket.
2. Cannelure.
3. Reinforced rear jacket.
4. Antimony hardened lad core.



PPC/VULKAN is reinforced by the folded front of the jacket which delays expansion until the bullet has penetrated deeply. When expansion starts however, it quickly reaches a double diameter mushroom along the inside expansion groove. This ensures excellent internal energy transfer with minimal meat destruction, even on heavy game. The folded tip protect the lead core from possible recoil damage in the magazine.

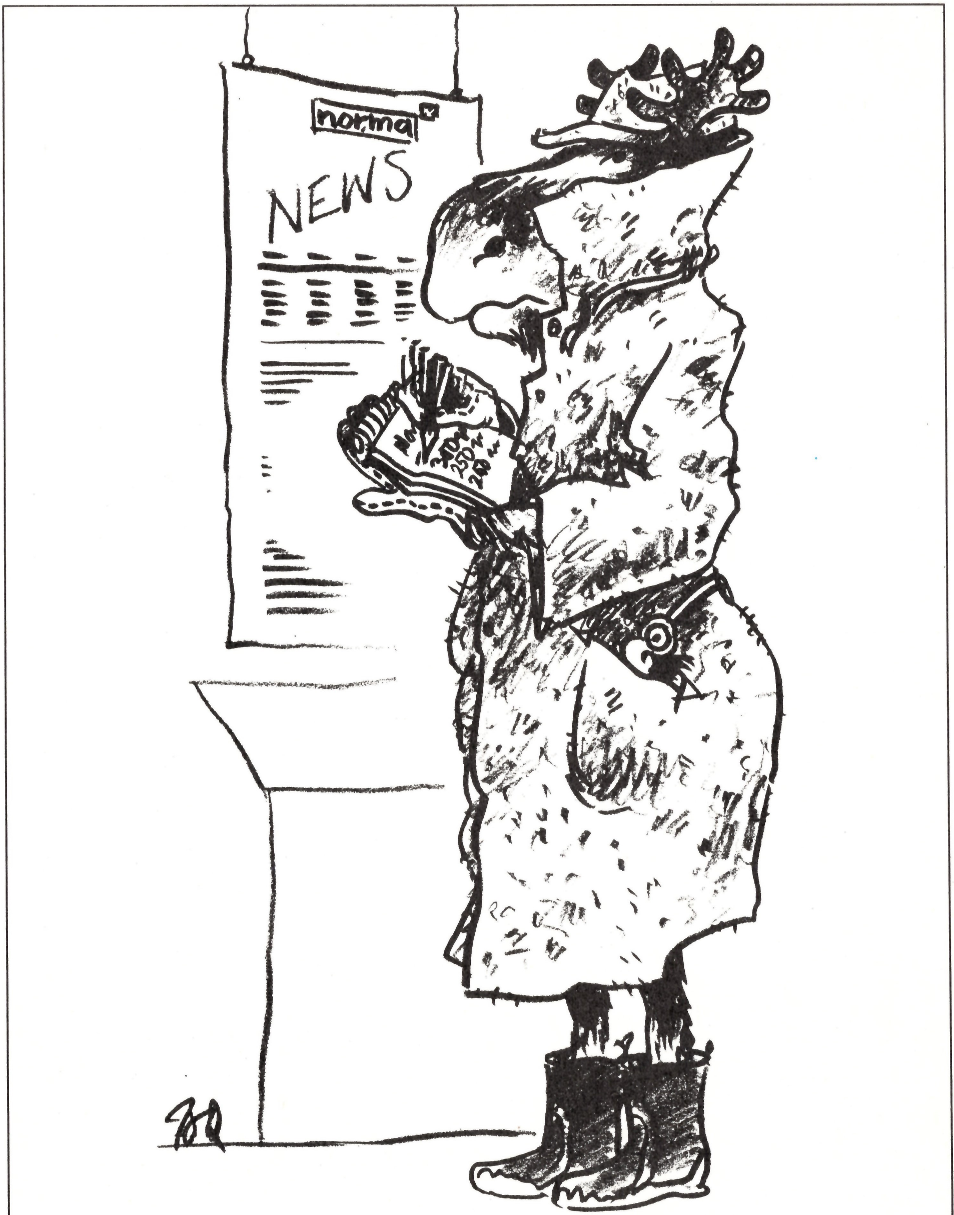
1. Jacket folded into lead core.
2. Thin front jacket with internal notches.
3. Cannelure.
4. Reinforced rear jacket.
5. Antimony hardened lead core.



SOFT POINT is a well designed all-purpose hunting bullet. It ensures good penetration at extended ranges, uniform expansion and moderate meat destruction even with medium and small game.

1. Exposed soft point.
2. Cannelure.
3. Antimony hardened lead core.
4. Boat tail for improved ballistics.

Choose the bullet and charge which provide the power you require.



"Keep up-to-date on hunting – like everyone else!"

RIFLE AMMUNITION

Calibre	Bullet weight			Velocity m/s	Energy Joule
Ref.	g	grains	Bullet type	V_0	E_0
.22 Hornet					
15606	3,0	46	Softpoint	740	821
15607	3,0	46	Full jacket	740	821
.220 Swift					
15701	3,2	50	Softp. semi pointed	1225	2401
.222 Rem.					
15711	3,2	50	Softp. semi pointed	990	1568
15713	3,2	50	Full jacket	850	1156
15714	3,4	53	Softp. Spire point	950	1534
15716	4,0	62	Softp. semi p. bt	860	1479
.22-250					
15733	3,4	53	Softp. Spire point	1130	2171
5,6x52 R					
(22 SAV. H.P.)					
15604	4,6	71	Softp. semi pointed	850	1662
15605	4,6	71	Full jacket semi p.	850	1662
.243 Win.					
16002	6,5	100	Full jacket semi p.	945	2902
16003	6,5	100	Softp. semi pointed	945	2902
6,5 Jap					
16531	9,0	139	Softp. semi p. bt	720	2333
16532	10,1	156	Softp. Alaska	630	2004
6,5 Carcano					
16535	10,1	156	Softp. Alaska	740	2765
16537	9,0	139	Softp. semi p. bt	785	2773
6,5x55					
16553	9,0	139	Softp. semi p. bt	770	2668
16558	9,0	139	Softp. Prot. PC	870	3406
16559	9,1	140	Softp. Nosler	850	3287
16552	10,1	156	Softp. Alaska	806	3280
.270 Win.					
16902	8,4	130	Softp. semi pointed	957	3858
16903	9,7	150	Softp. semi pointed	853	3529
7x57					
17002	10,0	154	Softp. semi pointed	820	3362
7x57 R					
17005	10,0	154	Softp. semi pointed	800	3200
17006	9,7	150	Full jacket semi p.	820	3261
7x61 S&H					
17011	10,0	154	Softp. semi pointed	933	4352
7 mm Rem. Mag.					
17021	10,0	154	Softp. semi pointed	970	4704
17024	11,0	170	Softp. Prot. PC	920	4655
7x64					
17013	10,0	154	Softp. semi pointed	860	3698
17018	11,0	170	Softp. Prot. PC	840	3880
.280 Rem.					
17050	10,0	154	Softp. semi pointed	875	3828
17051	11,0	170	Softp. Prot. PC	825	3743

Calibre	Bullet weight			Velocity m/s	Energy Joule
Ref.	g	grains	Bullet type	V_0	E_0
7,5x55 Swiss					
17511	11,7	180	Softp. semi p. bt	808	3786
7,62 Russian					
17634	11,7	180	Softp. semi p. bt	785	3574
17637	9,7	150	Softp. semi pointed	900	3928
.300 Win. Mag.					
17680	11,7	180	Softp. semi pointed	920	4909
.30-06					
17643	9,7	150	Softp. semi pointed	910	4016
17648	11,7	180	Softp. Alaska	850	4190
17649	11,7	180	Softp. Nosler	850	4190
17659	11,7	180	Softp. Prot. PC	850	4190
17682	11,7	180	Softp. semi p. bt	750	3262
17684	13,0	200	Softp. Prot. PC	805	4212
.30-30 Win.					
17630	9,7	150	Softp. flat nose	725	2549
.308 Win.					
17624	9,7	150	Softp. semi pointed	880	3755
17635	11,7	180	Softp. Nosler	805	3758
17636	11,7	180	Softp. Alaska	805	3758
17660	11,7	180	Softp. Prot. PC	805	3758
17681	11,7	180	Softp. semi p. bt	750	3262
17683	13,0	200	Softp. Prot. PC	750	3656
.308 Norma Mag.					
17638	11,7	180	Softp. Spire point	920	4938
7,65 Argentine					
17701	9,7	150	Softp. semi pointed	811	3190
17702	11,7	180	Softp. semi pointed	790	3619
.303 British					
17712	9,7	150	Softp. semi pointed	830	3341
7,7 Jap					
17721	8,4	130	Softp. semi pointed	900	4302
17722	11,7	180	Softp. semi p. bt	760	3350
8x57 JS					
18017	10,7	165	Softp. Prot. PC	870	4049
18003	12,7	196	Softp. Alaska	770	3765
.338 Win. Mag.					
18502	16,2	250	Softp. Nosler	810	5315
.358 Norma Mag.					
19004	16,2	250	Softp. round nose	853	5893
9,3x57					
19305	15,0	232	Softp. Prot. PC	710	3780
19303	18,5	286	Softp. Alaska	630	3671
9,3x62					
19317	15,0	232	Softp. Prot. PC	800	4800
19315	18,5	286	Softp. Alaska	720	4795
.375 H&H					
19502	19,5	302	Softp. round nose	777	5886

A range to cover all hunting requirements

Norma make ammunition for all kinds of hunting. Within the range there will be an ideal loading for your particular interest. For any given calibre, you may find different bullet and loading combinations, thereby increasing the versatility of your firearm. Norma ammunition is available throughout the world and is available in a wide range of internationally recognized calibres from .22 Hornet to .375 H&H Magnum. In all, some 30 calibres and 70 different loadings.

norma
20 CARTRIDGES · PATR
PATRO
norma
CA
S ·
OUCHES · PAT

Medium Game Loads

As solution to the dilemma facing the hunter who may possess only heavy calibre firearms and wishes to hunt smaller game, we have developed a range of Medium Game Load cartridges engineered to ensure limited meat destruction on a variety of small game such as roe-deer. New is the .222 Rem MGL with a 62gn SP bullet and a M.V. of only 2860 ft/sec. (860 m/sec).

norma
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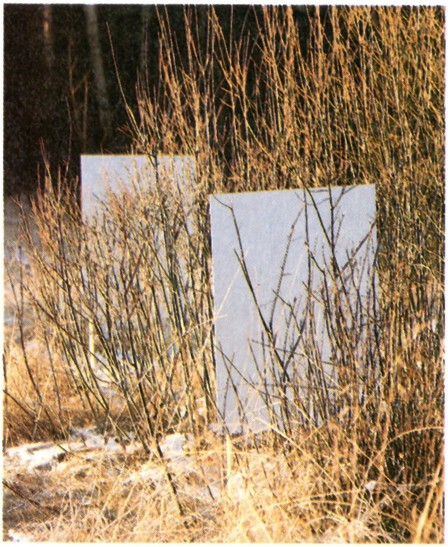
.30–06 Softpoint, 6,5 x 55 Softpoint, .308 Winchester, Softpoint, .22 Remington

Holland & Holland, Softpoint, .338 Win.Mag., Nosler, .358 Norma Mag., Softpoint

Big Game Calibres

Norma are pleased to announce the introduction of several traditional big game cartridges. Some are re-introductions of discontinued loadings, and some are brand new. All are made with dedicated big game hunter in mind.



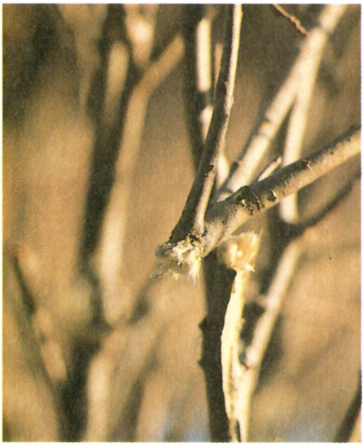
Shooting through obstacies always effects bullet performance.

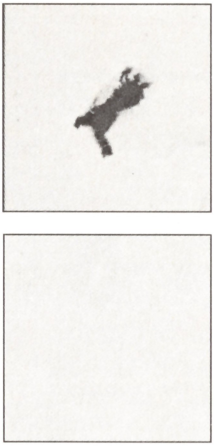
Even when shooting through light underbrush and grass the precision and function of the bullet is affected.

Shooting through bushes and branches means taking unnecessary risks. The flight of a bullet through air is a finely tuned balancing act, the aim of which is to keep the bullet level with the nose forward all the time. The smallest interference within the flight path may cause the bullet to change direction or topple. On impact, an upended bullet loses much if its penetrating ability and will almost always result in a wounded animal or an outright miss. Either situation is to be avoided. By building a simple test range, it is possible to evaluate the devastating effect on the trajectory of a bullet by the interference of grass, branches or brush.

Our bullets have been tested in this manner by mounting two paper screens 9ft. apart. In front of the first screen we placed a fence of 1/8ins. thick twigs. Between the screens we placed some 1/2ins. thick branches. Behind the screens was an adequate backstop.

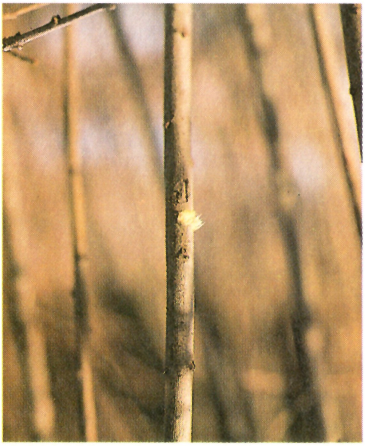
The illustrations on the next page show the result of our tests. All bullets either upturned or changed direction and most of them started to expand. On some, both jacket and core disintegrated. If a bullet damaged in this manner hits an animal, the result is almost always a non-fatal wound and some tedious tracking. The exercise proves that you should never shoot unless you have a clear field of view, not even with large calibres. There in only one exception to this – where a wounded animal necessitates a second shot.

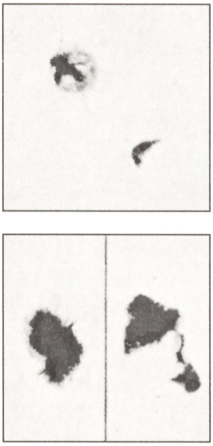




6.5 x 55

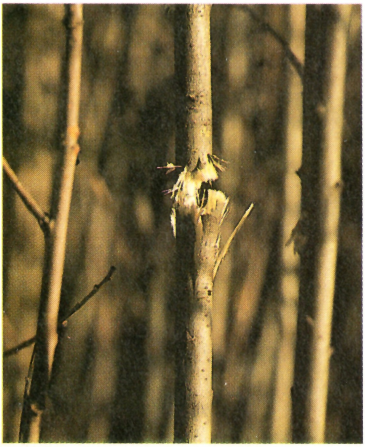
A 139gr bullet in 6.5 calibre cut a 1/8ins. twig in front of the first screen. It then hit a 1/2ins. twig and completely missed the second screen.

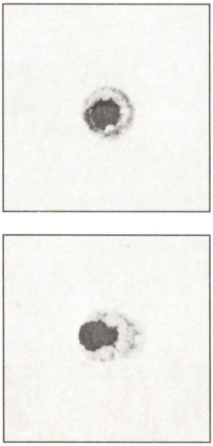




30—06

The fast 130gr 30-06 bullet hit a tiny twig in front of the first screen and started to separate. It nicked a 1/2ins twig between the screens, causing the jacket and core to pass through the back screen separately.





9.3 x 62

The 286gr Alaska bullet in 9.3 x 62 cut two thin twigs in front of the first screen without much effect. It then hit a 1/2ins twig and started to keyhole through the second screen.

SECOND ATTEMPT

The radio crackled...

"I think I got her. She started before she got away."

"Stay there and mark out where she stood when you hit her. I'll call up Mats and his dog."

We sat over a brew-up and listened to the conversation on the radio. Mats went to his car to get Rapp and bag of equipment: tracking harness, rope, map, compass, binoculars, markers, torch. I fetched my rifle and a box of .358 Norma Magnum.

We were experinced hunters and the site of the shooting had been left undisturbed. We investigated thoroughly and discovered a little clear red blood, propably from a shot wound. After an hour Rapp arrived at the site. He nosed about for a while before finding the scent and then he was off in his tracking harness. Down the hill, over a stream and out into a clearing. The bushes cracked infront of us and the elk cow got up from her hiding place behind some large trees and thick bushes. Unfortunately she rapidly disappeared from sight. Mats released Rapp, who was wearing a collar with a transmitter. He took off after the elk and we took a look at the place where she had lain. We found more clear red blood, which told us she had been shot.

We heard nothing from Rapp and the elk for quite a long time. So we sat down to wait. It was an hour before Rapp returned. He circled us and then took off again. After a while he came back, looked at us and departed. Obviously he wanted to show us something he had found. We moved slowly and deliberately through the forest, following Rapp.

Mats called in Rapp and put the tracking harness on him again. When we found clear elk tracks and blood on several low branches we were sure that Rapp had tracked the right elk. After an hour we came to a stream. Rapp pointed, there was an elk close by. A hefty jump and we were across the stream. Seconds later there was a noise in the forest and we heard the elk getting up out of the undergrowth. Mats released Rapp and he went after the elk. After a few minutes we heard barking. Rapp was tired of playing hide-and-seek and was trying to round up the wounded elk.

We could hear him moving with the elk, walking slowly. After a time the barking came again, from the same position. We moved around in a circle to be able to move it against the wind. We crept slowly through the undergrowth. Soon we sighted the elk 150 metres away, standing in a slight depression. Rapp was nowhere to be seen, but the elk was obviously concentrating on his position. We crept forward until we came up broadsides on to the elk. The range was 90 metres and the rifle loaded with .358 Norma Magnum. A clean shot, but the elk took off no longer caring about the dog. She had covered several metres when her hind legs folded and she went down dead. A good shot. A good ending to a second attempt.

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Warm and dry

A wet and frozen hunter reacts slowly and shoots badly. It is important therefore, to dress in accordance with anticipated weather to avoid becoming cold and wet. Bear in mind that hunting often consists of an approach and then a long wait, or a preiod of constant movement as when stalking.

The layered principle

Movement causes perspiration so it is worth trying to dress lightly. The traditional "layered" principle is usually successful. First comes a layer of underwear which removes moisture from the body, then a porous garment such as a thick wool or flannel shirt, to absorb the moisture from the underwear.

The outer layer

On the outside, choose a wind-proof jacket which is easy to open, and preferably with a removable liner. Ideally, the jacket should be long enough to reach below the back and to overlap the trousers. The trousers should be roomy with generous pockets.

If it is raining, and the brush and trees are wet, trousers with leather covered legs are ideal. Make sure that the leather is soft and does not create a noise when it comes into contact with branches.

Leather boots or Wellington

Wellingtons or leather boots are superior to most other forms of footwear whenever the ground is wet and as long as the lakes and moors are not fully frozen. To avoid freezing when not on the move, a large pair of thick woollen socks pulled on the outside of the boots will help keep feet warm. During winter when the ground is covered with snow, leather boots may be prefered as they allow the feet to breath and remain supple even at low temperatures.

At your stand

On arrival at your stand, compensate for lack of body movement by putting on extra clothes such as a sweater. A pair of outer trousers may be necessary in winter. Even if they are only thin waterproofs, they will help retain a layer of warm air to insulate against the chilling effect of the wind.

A scarf may be regarded as a necessity, as it allows you to adjust the release of body heat both at rest and while walking.

Since you must now keep still and warm for a couple of hours, make sure you have a seat cover or a rucksack with a built in stool. Never sit directly on the ground. Even uncovered logs and rocks should be avoided since they will be very cold.

Headwear

Of paramount importance in cold conditions is some form of cap or hood. Almost 50% of the body's heat can be lost from the head in cold weather. The body attempts to keep the brain warm before any other part of the body. Extra blood is therefore pumped to the head in an effort to keep the temperature from falling, resulting in the closure of surface vessels in other parts of the body. This is when hands and feet begin to freeze.

Hot coffee and sandwiches also make life more pleasant whilst at rest.

Match Shooting

Roger Jansson is one of the foremost Swedish Match Shooters and has an enviable reccord at international level.

Military World Championships
300M
1984 Bronce, Individual
1985 Silver, Individual
National Championships 1987,
300M 4 Gold of possibe 5
National Chamionships 1988,
3000M Gold of possible 5

Also a member of the team to break the World Record, 60 shots prone, 1987

Roger, you have been competing for almost 20 years, how did it start?

A shooting was a part of my formative years. My father was an enthusiastic hunter and he often took me along on his trips. I became very interested in shooting and soon began serious training. It was anounced that the winner of the 1972 National finals would win a trip to watch the Olympics, and that made me determined to succeed. I won the trip.

So that was the start of your shooting career?

Yes, from that time I have trained very seriously. I have spent many years perfecting a programme that suits me. I must be able to trust my body, my gun and the ammunition. I do physical exercises 3–4 times a week, a bit more during the winter, and also mental exercises.

Do you shoot a lot?

About 25,000 rounds a year. For me, it is very important to have ammunition of absolute consistency, otherwise it is difficult to assess the results of training. That's why I choose Norma.

What about hunting, do you find time for that also?

Yes, that's a kind of training too. I get out in the open and use my shooting skills. It all helps.

What advice would you give to those who are thinking about match shooting or training before going hunting?

The object of training is to become totally familiar with your gun. It should become an extension of your body. Try to find a comfortable shooting stance which you can easily adopt after every round. Pulling the trigger should be instinctive, allowing total concentration on sights and target. Hard work and dedication together with high quality equipment and ammunition is the key to progressing towards excellence.

Some of the world's best shooters use Norma

Fullbore shooting is demanding, both for shooter, gun and ammunition. The shooter knows how to perfect his ability and the gun can be fine tuned. The quality of ammunition is up to the manufacturer, a situation in which the shooter must have total faith.

The Swedish National Rifle Team has trusted Norma ammunition for many years and will use it again at the next World Championships.

In 1988 the team won a European Championship title and broke the world record for 60 shots prone for 3-man teams. Three shooters fired 60 rounds each within 105 minutes, and all shots struck within an area of a few inches at 3000 range. An example of a high level of training and accuracy of both gun and ammunition.

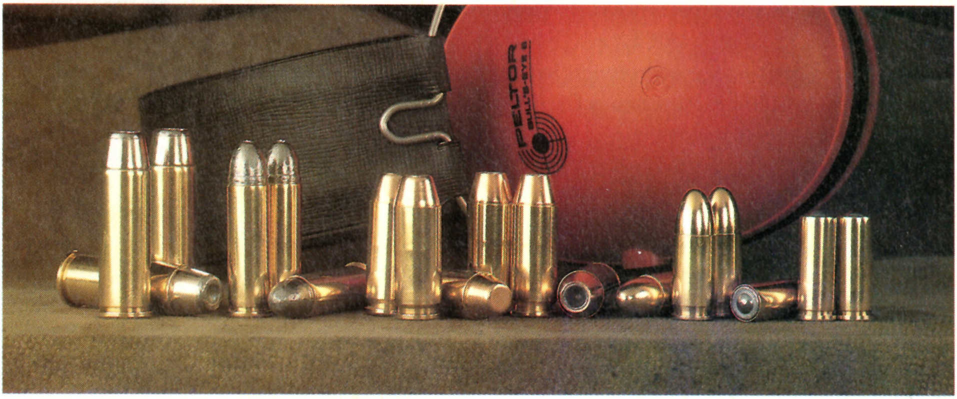
Skyttegille

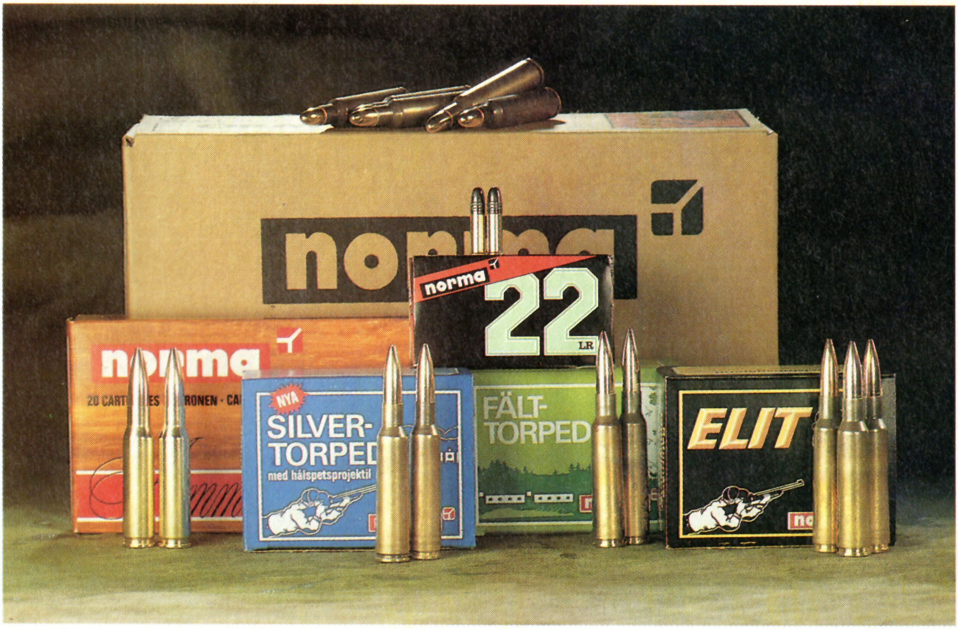
The national rifle sport team "Normagruppen".

Competition ammunition

for pistols and rifles

Norma has worked together with competition shooting and competition marksmen for many years. This has provided us with the necessary experience and know-how to manufacture high precision, reliable ammunition. Ammunition used by many the best competition marksmen in the world today.


PELTOR
BULL'S-EYE 6


norma
norma
22
LR
norma
20 CARTRIDGES
PATRONEN
NYA
SILVER-
TORPED
med hålspetsprojektil
FÄLT-
TORPED
ELIT

PISTOL- AND REVOLVER AMMUNITION

Calibre	Ref.	Bullet weight		Bullet type	Barrel length mm	Bullet		Ref. nr bullet	Velocity m/sec. V_0	Energy Joule E_0
		g	grains			length mm	diam. mm			
.32 ACP	17614	5,0	77	Full j. round nose	100	12,5	7,81	67610	274	188
.32 S&W Long	17810	6,4	98	Lead wadcutter	100	14,6	7,98	67810	240	184
9 mm Luger	19021	7,4	115	Power cavity	120	14,5	9,02	69021	355	466
	19022	7,5	116	Full j. round n. m-gun	120	15,2	9,02	69010	355	473
	19026	7,5	116	Softp. flat nose	120	13,5	9,02	69026	355	473
	19012	7,5	116	Full j. round nose	213	15,2	9,02	69010	405	615
.38 Special	19110	9,6	148	Lead wadcutter	100	16,6	9,07	69110	215	222
	19112	10,2	158	Lead round nose	100	17,6	9,07	69112	230	271
	19114	10,2	158	Full j. semi wadcutt.	100	18,5	9,07	69106	245	307
	19124	10,2	158	Softp. flat nose	100	16,7	9,07	69107	245	307
.357 Magnum	19101	10,2	158	Power cavity	100	17,2	9,07	69101	370	698
	19106	10,2	158	Full j. semi wadcutt.	100	18,5	9,07	69106	370	698
	19107	10,2	158	Softp. flat nose	100	16,7	9,07	69107	370	698
10 mm Auto	11002	11,0	170	Power cavity	125	14,5	10,16	61002	396	862
	11001	13,0	200	Full j. flat nose	125	17,1	10,16	61001	340	751
.44 Magnum	11103	15,6	240	Power cavity	100	17,5	10,95	61103	390	1186

RIFLE CARTRIDGES

	Ref.	Bullet type	Bullet weight		Velocity m/sec. V_0
			g	grains	
6,5x55 mm					
"Nya Silvertorped"	16512	Power cavity	9,0	139	800
"Fälttorped"	16514	Full jacket	9,0	139	830
"Elit"	16517	Power cavity	9,0	139	800
Rifle sport cartridge	16522	Full j. semi p.	5,2	80	853
.308 Win.					
.308 Win Match	17679	Power cavity Sierra	10,9	168	777
.308 Win Match	17626	Power cavity Sierra	12,4	190	780

RIFLE BULLETS

6,5 mm 9 g tombak	66516
6,5 mm 9 g Power cavity (Elit)	66517

GUNPOWDER

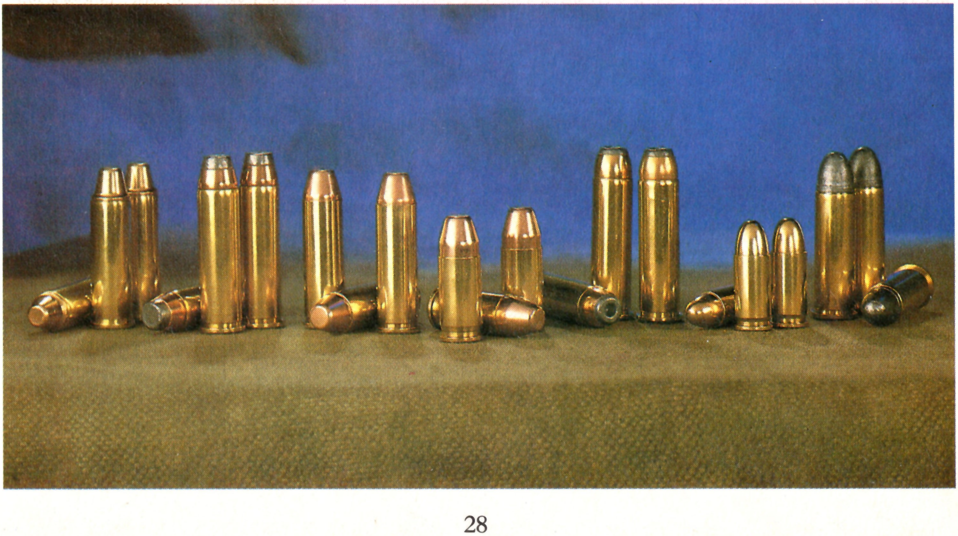
Rifle sport gunpowder 1220	93220

Police ammunition for the whole world

Swedish police demand even more reliability of their ammunition than do hunters and competition marksmen. Because a policeman is only allowed to use his gun when his life is definitely threatened. And in this situation he is only allowed to shoot to remove the threat. In such a case he has to be 100% sure of his ammunition.

Norma has developed a special safety bullet for police forces. The bullet is very reliable and very accurate. This is of enormous importance to a policeman because he has to hit what he is aiming at, especially if there are bystanders in the vicinity. Nor shall it ricochet from hard surfaces. If the bullet hits a wall or the street it has to disintegrate into harmless fragments. After a hit or passing through something it should not retain sufficient velocity to cause serious injury to anyone else in the vicinity. For this reason the police always test ammunition most carefully before using it. In addition the police undergo very intensive marksmanship training. It is necessary for a policeman, even under very heavy psychological pressure, to make a fast decision to shoot or not. He must not missjudge the situation and he must hit what he aims at.

Swedish police use the Norma 9 mm safety bullet. In addition, this ammunition is supplied to many different police forces throughout Western Europe, USA and Asia. Police in different countries employ different tactics and the ammunition has to be modified accordingly. this is one of Norma's strengths, to be able to manufacture special ammunition to a very high standard.



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Handloading

Loading your own ammunition is a fascinating and rewarding hobby. You can tailor make cartridges to your own particular needs and use the cases over and over again. Use Norma's ballistic tables and loading data to produce safe and accurate handloads.

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100 PRECISION MADE
BULLETS
GESCHOSSE
BALLES
norma
SMOKELESS
POWDER
DANGER
EXTREMELY FLAMMABLE
WARNING
202
200
204

RIFLE BULLETS

Calibre	**Ref.**	**Bullet type**	**Bullet weight** g	**grains**
22 cal	65701	Softp. semi pointed	3,2	50
(224")	65702	Full jacket semi p..	3,2	50
	65704	Softp. Spire point	3,4	53
	65705	Softp. semi pointed	4,0	62
5,6 mm	65604	Softp. semi pointed	4,6	71
(228")	65605	Full jacket semi p..	4,6	71
6 mm	66002	Full jacket semi p..	6,5	100
(243")	66003	Softp. semi pointed	6,5	100
6,5 mm	66522	Full j. round nose	5,2	80
(264")	66516	Full j. Spire point	9,0	139
	66531	Softp. semi pointed	9,0	139
	66533	Softp. Prot. PC	9,0	139
	66517	Full j. Power cavity	9,0	140
	66532	Softp. Alaska	10,1	156
270 cal	66912	Softp. Spire point	8,4	130
(277")	66914	Softp. Spire point	9,7	150
7 mm	67002	Softp. semi pointed	9,7	150
(283")	67033	Softp. Spire point	10,0	154
	67003	Full jacket semi p..	11,0	170
30 cal	67630	Softp. flat nose	9,7	150
(308")	67651	Full j. Spire point	9,5	146
	67648	Softp. Alaska	11,7	180
	67653	Softp. Prot. PC	11,7	180
	67665	Softp. Spire point	11,7	180
	67654	Softp. Prot. PC	13,0	200
303 cal	67701	Softp. semi pointed	9,7	150
(311")	67713	Softp. semi pointed	11,7	180
8 mm S	68014	Full jacket semi p..	8,0	123
(323")	68017	Softp. Prot. PC	10,7	165
	68003	Softp. Alaska	12,7	196
9,3 mm	69305	Softp. Prot. PC	15,0	232
(365")	69306	Full jacket semi p..	15,0	232
	69315	Softp. Alaska	18,5	286

PISTOL/REVOLVER BULLETS

.30 cal	67610	Full jacket semi p.	5,0	77
.32 cal	67810	Lead wadcutter	6,4	98
9 mm	69010	Full jacket semi p.	7,8	116
	69021	Softp. Power cavity	7,5	115
	69026	Softp. flat nose	7,5	115
.38 cal	69101	Softp. Power cavity	10,2	158
	69106	Full j. Semi wadcutter	10,2	158
	69107	Softp.	10,2	158
	69110	Lead wadcutter	9,6	148
	69112	Lead roundnose	10,2	158
10 mm	61001	Full jacket	13,0	200
	61002	Power cavity	11,0	170
.44 cal	61103	Softp. flat nose	15,6	240

CASINGS

Kaliber	**Prod. nr**
.220 Swift	25701
.222 Rem.	25711
.22-250	25731
.243 Win.	26001
6,5 Jap.	26531
6,5 Carcano	26535
6,5x55	26551
.270 Win.	26901
7x61 S&H	27011
7 mm Rem. Mag.	27021
7x64	27012
7.62 Russian	27634
.30-06	27640
.30-30	27630
.308 Win.	27623
.308 Norma Mag.	27637
.300 Win. Mag.	27666
.303 British	27711
7.7 Jap.	27721
.338 Win. Mag.	28504
.358 Norma Mag.	29001
.375 H&H	29501

PISTOL/ REVOLVER CASINGS

.32 S&W Long	27811
9 mm Luger	29021
.38 Special	29110
.357 Magnum	29101
10 mm Auto	21001
.44 Magnum	21101

GUNPOWDER

Norma powder 200	93200
Norma powder 201	93201
Norma powder 202	93202
Norma powder 204	93204
Norma powder MRP	93215
Norma powder R-1	91101
Norma powder R-123	91123

Weapon service and maintenance

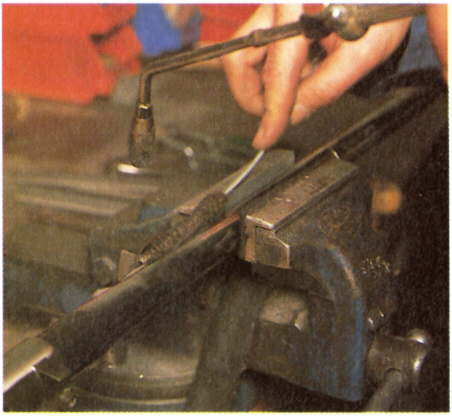
Modern weapons and ammunition remain very accurate for many years provided they are looked after properly. Unfortunately all materal is subject to wear and tear, and so your weapons require looking after and servicing. Steve Holmquist is an expert in this field and has been with Norma's weapons service for more than 30 years.

We visited him in the weapons shop and discovered an extremely well equipped workshop.

There are three underground shooting ranges in addition to the workshop. Where weapons can be adjusted and checked after service or repair. All special tools required are available. NORMA runs a large machine tooling workshop for building, maintaining and repairing production machinery. This is high precision work, the same precision as goes into NORMA.

Steve emphasized the importance of looking after your rifle properly.

– A simple thing like daily care can put years more life into your weapon. Its very important to be careful with the muzzle when cleaning. Use a wooden cleaning rod or one with a plastic cover. Remember that many modern bullets are made of tombac, with low friction. Tombac leaves residue in the barrel. So you should clean the barrel with a solvent and bronze brush after 75-100 shots. This is the best way to remove tombac residue, which otherwise could affect accuracy.



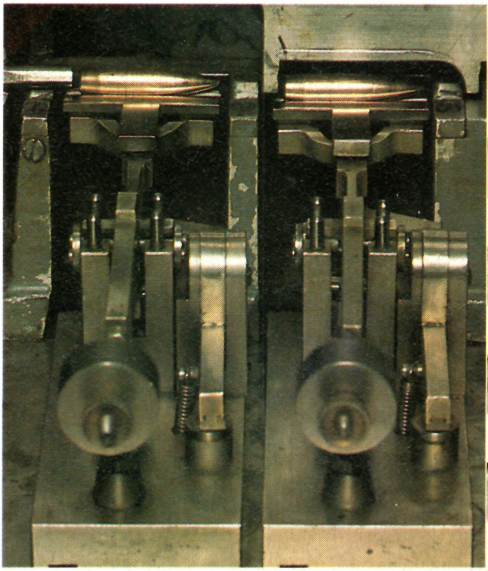
Can I do anything about it if my rifle becomes less accurate as it gets older?

Yes. You can do a great deal. One reason for decreased accuracy is stock deformation through cold and damp. This is a living material – wood. The body bed position alters and precision deteriorates. If the barrel is worn or rusty you can replace it. Most parts of a rifle can be improved or replaced if subject to wear or damage. You may require a different pressure, a rest fitted to the butt, or even a new butt. All these things can contribute to improving the accuracy of your weapon.

Do you carry out other types of work?

Oh, yes. We often fit diopter and telescopic sights. In addition we take care of a great deal of guarantee service and repairs for both civilians and police. One unusual operation is the manufacture of barrels for our own use. We make test barrels for testing our ammunition. We buy the raw materials from weapons makers, fit a chamber and modify the barrel to fit our fixed shooting benches. This gives us perfect reference material for testing.

The NORMA weapons shop has the capacity to carry out all the work required to keep your weapon in perfect shape or improve it. 4 people work here and some of them have been working with weapons for 15-20 years. Impressive expertise at your disposal.



KUNGL HOVLEVERANTÖR

At the decisive moment everything has to work together perfectly. The hunter, the weapon and the ammunition.

The precision built into Norma ammunition is the result of years of experience. We are hunters too, and we know what hunters need. We develop our products constantly and manufacture our machines and tools ourselves. Every bullet is hand-checked before boxing.

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FFV NORMA AB S-670 40 ÅMOTFORS 0046 571 30820

Connexion, Göteborg, Norma, Åmotfors. Foto: Caj Britschgi och Studio Bo Kågerud, Göteborg, Jan Augustsson/Bergslagsbild, Tore Hagman och "Magnus", Vårgårda, Mikael Rimglander, Uppsala.